Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

2017 Pennsylvania NAIP Digital Ortho Photo Imagery

1.2. Summary description of the data:

This data set contains imagery from the National Agriculture Imagery Program (NAIP). The NAIP program is administered by USDA FSA and has been established to support two main FSA strategic goals centered on agricultural production.
These are, increase stewardship of America's natural resources while enhancing the environment, and to ensure commodities are procured and distributed effectively and efficiently to increase food security. The NAIP program supports these goals by acquiring and providing ortho imagery that has been collected during the agricultural growing season in the U.S. The NAIP ortho imagery is tailored to meet FSA requirements and is a fundamental tool used to support FSA farm and conservation programs. Ortho imagery provides an effective, intuitive means of communication about farm program administration between FSA and stakeholders.
New technology and innovation is identified by fostering and maintaining a relationship with vendors and government partners, and by keeping pace with the broader geospatial community. As a result of these efforts the NAIP program

provides three main products: DOQQ tiles,
Compressed County Mosaics (CCM), and Seamline shape files
The Contract specifications for NAIP imagery have changed
over time reflecting agency requirements and improving
technologies. These changes include image resolution,
horizontal accuracy, coverage area, and number of bands.
In general, flying seasons are established by FSA and are
targeted for peak crop growing conditions. The NAIP
acquisition cycle is based on a minimum 3 year refresh of base
ortho imagery. The tiling format of the NAIP imagery is based
on a 3.75' x 3.75' quarter quadrangle with a 300 pixel buffer
on all four sides. NAIP quarter quads are formatted to the UTM
coordinate system using the North American Datum of 1983.
NAIP imagery may contain as much as 10% cloud cover per tile.

1.3. Is this a one-time data collection, or an ongoing series of measurements?
One-time data collection

1.4. Actual or planned temporal coverage of the data:
2017-05-09 to 2017-10-03

1.5. Actual or planned geographic coverage of the data:
W: -80.66805555556, E: -74.73111111111, N: 42.6175, S: 39.59555555556

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Image (digital)

1.7. Data collection method(s):
(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:
NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:
NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:
coastal.info@noaa.gov

2.5. Phone number:
(843) 740-1202

3. Responsible Party for Data Management
Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

3.2. Title:
Data Steward

4. Resources
Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

5. Data Lineage and Quality
NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible
(describe or provide URL of description):
Process Steps:
- 2017-12-12 00:00:00 - DOQQ Production Process Description USDA FSA APFO NAIP Program 2017 State: Delaware The imagery was collected using the following digital sensors: Leica ADS-100 (Serial Number 10547) Leica ADS-100 (Serial Number 10564) with Flight and Sensor Control Management System (FCMS) firmware 4.54. Cameras are

calibrated radiometrically and geometrically by the manufacturer and are all certified by the USGS. Collection was performed using a combination of the following twin-engine aircraft: Turbines flying at 16,410 ft above mean terrain (tail number: AC90 N167R) (tail number: C441 N87WS) With these flying heights, there is a 27% sidelap, giving the collected data nominal ground sampling distance of 0.40 meters at 16,410. Based-upon the CCD Array configuration present in the ADS digital sensor, imagery for each flight line is 20,000-pixels in width. Red, Green, Blue, Near-Infrared and Panchromatic image bands were collected. The ADS 100 has the following band specifications: Red 619-651 Green 525-585 Blue 435-495 Near Infrared 808-882 all values are in nanometers Collected data was downloaded to portable hard drives and shipped to the processing facility daily. Raw flight data was extracted from external data drives using XPro software. Airborne GPS / IMU data was post-processed using INYS, PosPac and/or TerraPos software and reviewed to ensure sufficient accuracy for project requirements. Using Inpho software, planar rectified images were generated from the collected data for use in image quality review. The planar rectified images were generated at five meter resolution using a two standard deviation histogram stretch. Factors considered during this review included but were not limited to the presence of smoke and/or cloud cover, contrails, light conditions, sun glint and any sensor or hardware-related issues that potentially could result in faulty data. When necessary, image strips identified as not meeting image quality specifications were re-flown to obtain suitable imagery.

- 2017-12-12 00:00:00 - Aero triangulation blocks were defined primarily by order of acquisition and consisted of four to seventeen strips. Image tie points providing the observations for the least squares bundle adjustment were selected from the images using an auto correlation algorithm. Photogrammetric control points consisted of photo identifiable control points, collected using GPS field survey techniques. The control points were loaded in to a softcopy workstation and measured in the acquired image strips. A least squares bundle adjustment of image pass points, control points and the ABGPS was performed to develop an aero triangulation solution for each block using Pictovera software. Upon final bundle adjustment, the triangulated strips were ortho-rectified to the digital elevation model (DEM) The most recent USGS 10 meter DEMs were used in the rectification process. Positional accuracy was reviewed in the rectified imagery by visually verifying the horizontal positioning of the known photo-identifiable survey locations using ArcGIS software. The red, green, blue, and infrared bands were combined to generate a final ortho-rectified image strip. The ADS sensor collects twelve bit image data which requires radiometric adjustment for output in standard eight bit image channels. The ortho-rectified image strips were

produced with the full 12 bit data range, allowing radiometric adjustment to 8 bit range to be performed on a strip by strip basis during the final mosaicking steps. The 12 bit data range was adjusted for display in standard eight bit image channels by defining a piecewise histogram stretch using OrthoVista Radiometrix software. A constant stretch was defined for each image collection period, and then strip by strip adjustments were made as needed to account for changes in sun angle and azimuth during the collection period. Strip adjustments were also made to match the strips histograms as closely as possible to APFO specified histogram metrics and color balance requirements. Automated balancing algorithms were applied to account for bi- directional reflectance as a final step before the conversion to 8 bit data range. The imagery was mosaicked using manual seam line generation in OrthoVista.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:
- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.3. Data access methods or services offered
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility

- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:
NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:
https://www.fisheries.noaa.gov/inport/item/60134

6.4. Process for producing and maintaining metadata
(describe or provide URL of description):
Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access
NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:
NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:
https://coast.noaa.gov/dataregistry/
https://coast.noaa.gov/dataviewer/#/imagery/search/where:ID=9124
https://coast.noaa.gov/htdata/raster4/imagery/PA_NAIP_2017_9124

7.3. Data access methods or services offered:

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:
(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):
Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?
Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.